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## Search Results - Record(s) 1 through 1 of 1 returned.

☐   1.   Document ID: US 4991023 A      Relevance Rank: 99

L6: Entry 1 of 1                          File: USPT                          Feb 5, 1991

US-PAT-NO: 4991023
DOCUMENT-IDENTIFIER: US 4991023 A

TITLE: Microprocessor controlled universal video monitor

DATE-ISSUED: February 5, 1991

INVENTOR-INFORMATION:
| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------|------|-------|----------|---------|
| Nicols; Gary H. | Auburn | CA | N/A | N/A |

ASSIGNEE INFORMATION:
| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
|------|------|-------|----------|---------|-----------|
| Hewlett-Packard Company | Palo Alto | CA | N/A | N/A | 02 |

APPL-NO: 7/ 355729
DATE FILED: May 22, 1989

INT-CL: [5] H04N 5/68, H04N 5/57
US-CL-ISSUED: 358/242; 340/744, 358/903, 358/168, 358/169
US-CL-CURRENT: 348/554; 345/213
FIELD-OF-SEARCH: 358/242, 358/64, 358/65, 358/903, 358/185, 358/168, 358/169,
358/171, 358/174, 340/720, 340/744

REF-CITED:

### U.S. PATENT DOCUMENTS

| PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|--------|-----------|---------------|-------|
| 3980926 | September 1976 | Krueger | 340/744 |
| 4321597 | March 1982 | Martin | 340/744 |
| 4507683 | March 1985 | Griesshaber et al. | 358/185 |
| 4518986 | May 1985 | Hinn et al. | 358/65 |
| 4656604 | April 1987 | van Loon | 358/903 |
| 4680599 | July 1987 | Wertz et al. | 340/744 |
| 4694350 | September 1987 | Hinn | 358/242 |
| 4855813 | August 1989 | Russell et al. | 358/903 |

ART-UNIT: 242
PRIMARY-EXAMINER: Peng; John K.
ABSTRACT:

A microprocessor controlled video montior is presented. The video monitor is able
to automatically adjust the values of its parameters to adjust to operation on a
number of different computer systems. The video monitor includes control lines,

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L4: Entry 2 of 13                    File: USPT                    Jun 20, 2000

DOCUMENT-IDENTIFIER: US 6078301 A
TITLE: Computer apparatus for sending video information to an image display
apparatus and receiving information from the image display apparatus


DEPR:
In the second embodiment of the present invention, since the control signal is
transmitted and received by means of the general-purpose interface,
bi-directional communication between the display unit 1d and the computer body 1c
can be made. Accordingly, the computer body can recognize whether the display
unit 1d has received the control signal exactly or not, how the control state of
the display unit 1d at the current time is or whether the display unit 1d is
exactly operated or not.

CLPV:
a common bi-directional interface cable for carrying the interleaved video and
control signals from the computer body interface to the display unit interface
circuit and for carrying the communication signals generated at the display unit
from the display unit interface circuit to the computer body interface.

CLPV:
wherein said first, second, and third communication signals are exchanged between
said computer body and said display unit through the bi-directional cable.

CLPV:
wherein said communication signal input/output means and said display unit is
connected through a bi-directional cable, said first, second and third
communication signal are exchanged between said computer body and display unit
through the bi-directional cable.

CLPV:
wherein said communication signal input/output means and said display are
connected through a bi-directional cable, said first and second communication
signals are exchanged between said computer body and display unit through the
bi-directional cable.

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DOCUMENT-IDENTIFIER: US 5448697 A
TITLE: Method and apparatus for simplified control of a video monitor

ABPL:
A method and apparatus which provides <u>bi-directional communication between a video monitor and a computer</u> system unit. This enables the video monitor to inform the system unit of its capabilities without user involvement and also enables the system unit to directly control or adjust all the functions of the video monitor. In the preferred embodiment, a monitor/mouse interface provides <u>bi-directional</u> communication between the video monitor and the system unit. The monitor/mouse interface connects to the mouse and video connectors or the back of the system unit and in turn connects to the mouse and video monitor. The interface includes separate data paths from the system unit to the mouse and video monitor, respectively. Monitor control software is included in the system unit which can be used to control or adjust the output of the video monitor. When a user desires to adjust the output of the video monitor, the monitor control software directs the monitor/mouse interface to provide a communication path between the system unit and the video monitor, and the system unit relates the control information input from the user to the video monitor, which adjusts its visual output accordingly. Also, at each power-on of the computer system, the monitor/mouse interface selects the data path between the system unit and video monitor to enable the video monitor to provide capability information to the system unit. A second embodiment includes the monitor/mouse interface logic comprised in the video monitor.

BSPR:
The present invention relates to video monitors in computer systems, and more particularly to a method and apparatus of <u>bi-directional communication between a video monitor and a computer</u> system unit to allow simplified system control of video monitor functions and simplified monitoring of the video monitor's capabilities.

DEPR:
The monitor/mouse interface 210 enables <u>bi-directional communication between the video monitor 116 and the remainder of the computer</u> system, i.e. the system unit 114, without any hardware changes to the system unit 114. This enables the system unit 114 to adjust the functions of the video monitor 116. In addition, this enables the video monitor 116 to transmit capability information to the system unit 114 without direct user involvement. In this description, the term "direct user involvement" refers to the user having to manually input capability information into the system unit 114 or load this information using a floppy disk. No direct user involvement is required in the present invention, but rather the capability information is automatically transferred at each power-on of the system unit 114 and monitor 116. Therefore the term "direct user involvement" does not include a user merely turning on the system unit 114, which automatically operates to transfer capability information according to the present invention, but rather the act of simply turning on the system unit 114 is referred to as "indirect user involvement."

DEPR:
Therefore, a <u>bi-directional communication method and apparatus between a video monitor and system unit in a computer</u> system is shown. In one embodiment, a monitor/mouse interface is included to provide the data path switching mechanism. In a second embodiment, the logic comprising the monitor/mouse interface is incorporated into the video monitor. This <u>bi-directional</u> communication can be performed with no hardware modifications to the system unit 114. The <u>bi-directional</u> communication allows the system unit to control all of the

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L4: Entry 8 of 13                     File: USPT                     Jul 29, 1997

DOCUMENT-IDENTIFIER: US 5652845 A
TITLE: Display apparatus

CLPV:
second control means for reading said second memory means when switching on a
power supply of said display unit connected to said computer, for receiving the
identification information sent from the said display unit connected to said
computer through said second communication means to said computer, for enabling
comparison of the received identification information from said display unit
connected to said computer with at least one of said plurality of identification
information stored in said second memory means and for enabling bi-directional
communication with said display unit upon achieving coincidence, and for
transmitting through said first and second communication means control signals
for controlling said internal circuit of said display unit.

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## Search Results - Record(s) 1 through 1 of 1 returned.

☐  1.   Document ID: US 5550966 A      Relevance Rank: 99

L8: Entry 1 of 1                          File: USPT                    Aug 27, 1996

US-PAT-NO: 5550966
DOCUMENT-IDENTIFIER: US 5550966 A

TITLE: Automated presentation capture, storage and playback system

DATE-ISSUED: August 27, 1996

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
| --- | --- | --- | --- | --- |
| Drake; Samuel | San Jose | CA | N/A | N/A |
| Griefer; Allan D. | San Jose | CA | N/A | N/A |
| Powers, Jr.; John T. | Morgan Hill | CA | N/A | N/A |
| Thomas; John G. | Santa Cruz | CA | N/A | N/A |

ASSIGNEE INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
| --- | --- | --- | --- | --- | --- |
| International Business Machines Corporation | Armonk | NY | N/A | N/A | 02 |

APPL-NO: 8/ 365339
DATE FILED: December 28, 1994

PARENT-CASE:
This application is a continuation of application Ser. No. 07/874,441, filed Apr. 27, 1992, now abandoned.

INT-CL: [6] G06T 13/00
US-CL-ISSUED: 395/154; 395/152, 395/153
US-CL-CURRENT: 707/104; 345/302
FIELD-OF-SEARCH: 395/152, 395/153, 395/154, 364/419.19

REF-CITED:

U.S. PATENT DOCUMENTS

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☐  1.   Document ID: US 5483255 A      Relevance Rank: 99

L9: Entry 1 of 1                    File: USPT                    Jan 9, 1996

US-PAT-NO: 5483255
DOCUMENT-IDENTIFIER: US 5483255 A

TITLE: Display controller for liquid crystal panel structure

DATE-ISSUED: January 9, 1996

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------|------|-------|----------|---------|
| Numao; Takaji | Nara | N/A | N/A | JPX |

ASSIGNEE INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
|------|------|-------|----------|---------|-----------|
| Sharp Kabushiki Kaisha | Osaka | N/A | N/A | JPX | 03 |

APPL-NO: 7/ 972043
DATE FILED: November 5, 1992

FOREIGN-APPL-PRIORITY-DATA:

| COUNTRY | APPL-NO | APPL-DATE |
|---------|---------|-----------|
| JP | 3-291699 | November 7, 1991 |
| JP | 4-238619 | September 7, 1992 |

INT-CL: [6] G09G 3/36
US-CL-ISSUED: 345/98; 345/87
US-CL-CURRENT: 345/98; 345/87
FIELD-OF-SEARCH: 340/784, 340/765, 340/811, 340/805, 340/799, 359/54, 359/55,
358/236, 358/241, 345/98, 345/99, 345/100, 345/103, 345/185, 345/201, 345/200,
348/790, 348/792, 348/793

REF-CITED:

### U.S. PATENT DOCUMENTS

| PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|--------|------------|---------------|-------|
| 4430648 | February 1984 | Togashi | 340/784 |
| 4714921 | December 1987 | Kanno et al. | 340/784 |
| 5034735 | July 1991 | Inoue et al. | 340/784 |
| 5111195 | May 1992 | Fukuoka et al. | 340/811 |

### FOREIGN PATENT DOCUMENTS

| FOREIGN-PAT-NO | PUBN-DATE | COUNTRY |
|----------------|-----------|---------|
| 0435701 | July 1991 | EPX |
| 0492542 | July 1992 | EPX |

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L6: Entry 2 of 13                    File: USPT                    Apr 11, 2000

DOCUMENT-IDENTIFIER: US 6049316 A
TITLE: PC with multiple video-display refresh-rate configurations using active and default registers

ABPL:
A portable personal computer (PC) can be connected to a variety of different external CRT monitors. Configuration of each CRT monitor is performed by the graphics display driver software so that the user does not have to re-configure the graphics sub-system every time a different CRT monitor is connected. Auto-configuration of Plug-and-Play monitors occurs by reading configuration information from the monitor itself. For Windows 95, the Plug-and-Play drivers are used for auto-configuration, or for older operating systems the video BIOS display-data-channel functions is used. Older "legacy" CRT monitors that do not support Plug-and-Play are still auto-configured. The vertical refresh rate for each resolution is stored in a default register on the graphics controller chip. The vertical refresh rate from default register is copied to an active refresh-rate register when a legacy (non Plug-and-Play) monitor is detected. When a Plug-and-Play monitor is detected, the refresh rate is calculated and written to the active refresh-rate register, without overwriting the default registers. Thus a Plug-and-Play monitor can be connected without losing configuration information for the legacy monitors. A Plug-and-Play flag is also added to the graphics controller chip to disable the video BIOS auto-configuration when Windows 95 is used.

BSPR:
More recently CRT monitors have been constructed using the Plug-and-Play (PnP) standard, which allows the PC to automatically configure the PC for different monitors. FIG. 3 is a diagram of automatic configuration of an external monitor using plug-and-play. High-resolution CRT 26 is a newer monitor capable of supporting plug-and-play, and portable PC 20 also has plug-and-play hardware and software. On system initialization, portable PC sends out a series of clock signals on the 15-pin VGA cable to CRT 26, and CRT 26 responds by transmitting back to portable PC 20 a 128-byte data structure called the extended display identification data (EDID). The EDID contains information about the configurations and refresh rates supported by CRT 26, as defined by the Video Electronics Standards Association (VESA) of San Jose, Calif. in the "Display Data Channel Standard", 1996.

BSPR:
Software in portable PC 20 reads the configuration information in the 128-byte EDID and calculates the minimum and maximum vertical refresh rates 14, 16. From rates 14, 16 and the current resolution desired by the user, and the capabilities of the graphics controller hardware, the active refresh rate can be calculated or selected by the display driver using the appropriate video BIOS function. Thus the correct refresh rate is programmed to be active when both portable PC 20 and CRT 26 have hardware and/or software to support auto-configuration of monitors using plug-and-play.

DEPR:
The inventors have realized that automatic configuration of older CRT monitors can be supported, even when these monitors are not plug-and-play compatible. Default refresh rates for these legacy monitors can be separately stored and programmed as the active refresh rate when the monitor is not plug-and-play compatible. Newer monitors that support auto-configuration by plug-and-play program the active refresh rate using the configuration information from the monitor itself, bypassing the default refresh-rate registers.

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L6: Entry 12 of 13                          File: USPT                          Mar 10, 1998

DOCUMENT-IDENTIFIER: US 5727191 A
TITLE: Monitor adapter

BSPR:
The present invention relates to a <u>monitor</u> adapter. More particularly, the
present invention relates to a <u>monitor</u> adapter connected between a personal
computer and a video <u>monitor</u> for carrying out a relay to transmit <u>information</u>
required for <u>Plug and Play</u> to the personal computer and to transmit an optimal
video signal for the video <u>monitor</u> from the personal computer to the video
<u>monitor</u>.

BSPR:
<u>Display</u> adapter 92 performs a <u>Plug and Play</u> function for a CRT <u>display</u> apparatus
88. More specifically, <u>display</u> adapter 92 outputs a video signal and a
synchronization signal to an output port 94 for enabling <u>display</u> apparatus 88.
<u>Display</u> apparatus 88 includes a non-volatile memory 9 and device logic 97, and
device logic 97 is connected to adapter logic 96 in <u>display</u> adapter 92 through a
serial line 3. Non-volatile memory 9 stores <u>display information,</u> and adapter
logic 96 and device logic 97 constitute communication logic 95. Adapter logic 96
applies a command for read data and write data of non-volatile memory 9 to device
logic 97 through serial line 3, and device logic 97 responsively accesses
non-volatile memory 9 to read <u>display information</u> therefrom, and supplies the
<u>display information</u> to adapter logic 96 through serial line 3. Adapter logic 96
supplies RGB data to <u>display</u> apparatus 88 such that <u>display</u> apparatus 88 operates
in a mode adapted to itself.

BSPR:
Consequently, according to the present invention, since <u>information</u> related to a
video <u>monitor</u> can be output to a computer, even a conventional video <u>monitor</u> can
be connected to a computer with a <u>Plug and Play</u> function.

BSPR:
Consequently, according to the present invention, since <u>information</u> related to a
video <u>monitor</u> can be output to a computer in either a first mode or a second
mode, even a conventional video <u>monitor</u> can be connected to a computer with a
<u>Plug and Play</u> function in a manner adapted to DDC.